APPLICATION:
Flat and Curved Roofs

PRODUCTS:
Jabroll
Technical support
Vencel Resil provides technical and design support and has a dedicated team of professionals who have extensive experience of working in the industry. Many clients find the technical support they receive invaluable in ensuring that specifications are in line with modern building requirements. Being more than just a manufacturer of EPS products, it is the company’s expertise within this sector and the knowledge within its team which establishes Vencel Resil as one of the leading providers of high performance insulation.

Jablite – a market leading insulation material
Vencel Resil has a major UK manufacturing base, where its Jablite expanded polystyrene products can be produced to specific grades and thicknesses to suit clients’ needs. As such, the company is constantly seeking ways to enhance the performance of the range. Jablite EPS is a proven insulation material, widely regarded as one of the most effective on the market, offering high thermal performance, unrivalled sustainability credentials, long-term durability, whilst ensuring its cost effectiveness in the market.

Jablite Premium
Jablite Premium is an innovative Low Lambda (EPS) insulation material that has the capacity to enhance a building’s thermal performance by up to 20%. This enables builders and contractors to meet ever tightening Building Regulations without having to change their build practices.

A relatively new innovation in EPS insulation, Jablite Premium is becoming widely used in the floors, walls and roofs of domestic, public sector and commercial buildings. Instantly recognisable by its distinctive grey board with orange speckles, it provides the reassurances to architects, specifiers and contractors that the material used on site is the same as the one specified and, crucially, that the resulting performance matches the approved design intent.

A major benefit of Jablite Premium is that it offers improved U-values without having to alter the thickness of the cavity wall or change the construction of the floor or roof. This ensures contractors on site maintain their efficiency, whilst clients benefit from maximum internal floorspace and low running costs.

BRE Green Guide to Specification
The Green Guide, produced by the British Research Establishment (BRE), assesses a range of building products’ environmental performance over their full life-span and awards them with a sustainability rating.

EPS has achieved an A+, which is the highest rating possible and clearly demonstrates the material’s excellent thermal and environmental credentials. The BRE ranks materials on the basis that the benefit of using any of the insulation types listed in the guide will outweigh the embodied environmental impact of their manufacture, installation and end-of-life disposal.

Environmental credentials
Expanded polystyrene is recognised for its excellent energy efficiency and low environmental impact. It has an ODP (Ozone Depletion Potential) of zero and a low GWP (Global Warming Potential), which is exemplary. Vencel Resil is fully committed to sustainability in all areas of its operation. Energy saving and modern methods of construction are all carefully considered when researching and developing new products, as well as end of life recyclability.
APPLICATION:

Roof insulation – flat and curved roofs

Product: Jabroll

Jabroll is a rollable insulation material designed for use in warm-deck flat and curved roof constructions. The product consists of interlocking strips of Jablite EPS permanently bonded with a selvedge to a high-performance 180g/m² SBS-polymer-modified first-layer roofing membrane with a fine-sanded finish.

Jabroll can be used to meet the current Building Regulations’ insulation requirements for flat and curved roofs.

Easy to handle
Jabroll is manufactured from expanded polystyrene (EPS), which is lightweight and easy to handle on site.

Permanent
Jabroll is rot-proof and durable and will remain effective for the life of the building.

Versatile
Jabroll is suitable for use with all types of new and existing flat and curved roofs, with decks of concrete, metal, woodwool or timber, and with an SBS pour-and-roll or torch-on weathering finish.

Environment
Expanded polystyrene has been awarded an A+ rating by the BRE’s Green Guide to Specification.

Reduces cold bridging
The unique interlocking joints in the insulation help to reduce cold bridging and increase the rigidity of the insulation and finish.

Easy to install
Jabroll allows simultaneous installation of the insulation and the first layer of the weatherproofing, reducing on-site labour. The roof is immediately weatherproofed by sealing the felt selvedges.

Type
Jabroll is supplied as EPS 100 or EPS 150 as defined in BS EN 13163 Reaction to Fire Class E, containing a flame-retardant additive.

EPS 100 material should be selected for use on roofs which will be subject to ‘maintenance’ traffic only.

EPS 150 material should be used for roofs which will be subject to a high level of traffic, for example, balconies, terraces, etc.

Additional grades of material are available for applications subject to higher loads; further information is available from Vencel Resil’s technical services department.

Approvals
Jabroll has been assessed and approved by the British board of Agrement for use with built-up felt finishes: Certificate number 01/3812

Fire
When properly installed, the insulation is fully protected by the structural elements of the roof and the weatherproofing membrane and will have no adverse effect on either the fire resistance or the external fire exposure rating of the completed roof construction.

U-values
Approved Documents L1A to L2B will recommend the required U-value for a flat roof. Tables 34.1 and 34.2 illustrate the U-values achieved with various thicknesses of Jabroll when used on decks of concrete, profiled metal, woodwool, or timber with a plasterboard ceiling finish. The calculations include a built-up felt finish, and either EPS 100 with a k-value of 0.036W/mK for the insulation or EPS 150 with a k-value of 0.035W/mK for the insulation.

Dimensions
Standards size of roll: 3900 x 900mm
Standard thicknesses: 50, 65, 95 and 135mm (Other thicknesses available to order).

The membrane overlaps the insulation by 100mm on one side of the length and width.
Roof insulation – flat and curved roofs

Table 34.1

**Jabroll Type 100E**

<table>
<thead>
<tr>
<th>Thickness</th>
<th>Timber deck</th>
<th>Concrete deck</th>
<th>Metal deck</th>
<th>Woodwool deck</th>
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</thead>
<tbody>
<tr>
<td>50mm</td>
<td>0.53</td>
<td>0.61</td>
<td>0.57</td>
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<tr>
<td>65mm</td>
<td>0.43</td>
<td>0.49</td>
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<td>0.37</td>
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<tr>
<td>95mm</td>
<td>0.32</td>
<td>0.35</td>
<td>0.33</td>
<td>0.28</td>
</tr>
<tr>
<td>135mm</td>
<td>0.24</td>
<td>0.25</td>
<td>0.24</td>
<td>0.21</td>
</tr>
<tr>
<td>170mm</td>
<td>0.19</td>
<td>0.20</td>
<td>0.20</td>
<td>0.18</td>
</tr>
<tr>
<td>225mm</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
<td>0.14</td>
</tr>
</tbody>
</table>

Table 34.2

**Jabroll Type 150E**

<table>
<thead>
<tr>
<th>Thickness</th>
<th>Timber deck</th>
<th>Concrete deck</th>
<th>Metal deck</th>
<th>Woodwool deck</th>
</tr>
</thead>
<tbody>
<tr>
<td>50mm</td>
<td>0.52</td>
<td>0.60</td>
<td>0.56</td>
<td>0.43</td>
</tr>
<tr>
<td>65mm</td>
<td>0.42</td>
<td>0.47</td>
<td>0.45</td>
<td>0.36</td>
</tr>
<tr>
<td>95mm</td>
<td>0.31</td>
<td>0.34</td>
<td>0.32</td>
<td>0.28</td>
</tr>
<tr>
<td>135mm</td>
<td>0.23</td>
<td>0.24</td>
<td>0.24</td>
<td>0.21</td>
</tr>
<tr>
<td>170mm</td>
<td>0.19</td>
<td>0.20</td>
<td>0.19</td>
<td>0.17</td>
</tr>
<tr>
<td>225mm</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
<td>0.14</td>
</tr>
</tbody>
</table>

**Constructions:**

**Timber deck**
12.5mm plasterboard, joist void, 18mm plywood, vapour-control layer, Jabroll, felt

**Concrete deck**
150mm concrete deck, vapour-control layer, Jabroll, felt

**Metal deck**
12.5mm plasterboard, ceiling void, profile metal deck, vapour-control layer, Jabroll, felt

**Woodwool deck**
12.5mm plasterboard, ceiling void, 50mm woodwool deck, vapour-control layer, Jabroll, felt
APPLICATION:
Roof insulation – flat and curved roofs

Figure 34.1

NOTE: Jabroll comprises interlocking Jablite EPS sections bonded to a high-performance SBS-polymer-modified roofing membrane. Vapour-control layer minimum Type 3B felt (BS747) or Type 1F felt (BS747) if laid on a profiled metal deck.
Roof insulation – flat and curved roofs

INSTALLATION

Figures 34.2 – 34.4 illustrate Jabroll installed in conjunction with metal, concrete and timber decks.

Preparation
The roof deck must be level and even, and any deck joints should be taped. If necessary, an in-situ levelling screed should be applied to concrete decks which have a tamped finish, or which are constructed from precast planks. For refurbishment work, the existing weatherproofing should be stripped back to the structure, and any defects should be made good before proceeding. Where it is not practical to strip the existing finish without damaging the decking, it is acceptable to remove any loose chippings and to cut and seal any surface blisters to provide a sound surface. This surface may be used as the vapour-control layer. Where necessary the roof deck should be primed to ensure satisfactory adhesion of the hot bitumen.

Selection of thickness
The thickness of Jabroll should be selected to provide the required U-value. In the case of profiled metal deck roofs, the minimum thickness will be governed by the width of the trough; further information is available from Vencel Resil’s technical services department.

Vapour control
Jabroll provides significant resistance to the passage of water vapour, but it should not be considered as a vapour-control layer. An appropriate vapour control layer should be incorporated in the construction below the Jabroll. BS 8217 recommends a minimum Type 3B roofing felt (to BS 747), either fully or partially-bonded to the decking; if the decking is of profiled metal, the felt should be a minimum Type 1F.

Figure 34.2
Metal deck

Figure 34.3
Concrete deck

Alternatively, a high performance vapour control layer can be used as recommended by the manufacturer of the weatherproofing membrane. The vapour-control layer should be turned up to the full thickness of the Jabroll at all perimeters and upstands.
**APPLICATION:**

**Roof insulation** – flat and curved roofs

**Jabroll**
Jabroll is laid with the felt surface uppermost, and should be bonded by mopping a coat of hot bitumen to the vapour-control layer. Bitumen should be applied continuously to bond the full roll. The hot bitumen should not be allowed to ‘pool’ under Jabroll since this can result in damage to the underside of the insulation.

Alternatively, Jabroll can be bonded using cold-applied strip-bonding bitumen adhesive or similar; further information is available from Vencel Resil’s technical services department.

For ease of alignment, Jabroll is applied in the same way as is normally used for the membrane; i.e., unroll the material and ensure that it is correctly aligned, and then re-roll half the roll and bond it in place working out from the centre; then repeat for the second half of the roll. Jabroll should be laid with both the longitudinal and end joints tightly butted; care should also be taken to ensure end joints are properly interlocked. The joints should be sealed by bonding the felt overlap at the sides and end; as well as providing an immediately weatherproof surface, this helps to prevent the ingress of hot bitumen when bonding the cap sheet.

**Weatherproofing**
Jabroll provides a suitable first layer of a fully bonded, high-performance SBS weathering membrane system, using either pour-and-roll or torch-on mineral-surfaced cap sheets. In all cases, the felts must be applied in accordance with the manufacturer’s instructions. During installation, the felt surface of the Jabroll acts as an insulator, protecting the EPS from the hot bitumen or the torch flame. However, note that containers of hot bitumen should not be placed directly on the felt itself.

**Storage**
Jabroll should be stored laid on its sides and not on the ends. Care should be taken to avoid damage to the felt overlaps at the side and ends of each roll.

**Barrel vault roofs**
Jabroll is ideally suited for use on curved and barrel vaulted roofs. The interlocking strips of EPS insulation allow the material to be fitted precisely to curved roofs with a diameter of 2,000m or greater. For curved roofs with a smaller diameter Jabroll can be supplied with tapered cut strips to allow greater flexibility. (See figure 34.5).

**References**
BS 747 Specification for roofing felts. BS 8217 Code of practice for built-up felt roofing.
BS 8218 Code of practice for asphalt roofing.
BS EN 13163 Thermal insulation products for buildings – Factory made products of expanded polystyrene (EPS) – Specification